



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

**SECP2523: DATABASE  
SEM I 2024/2025**

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**DATABASE DESIGN DESCRIPTIONS: CONCEPTUAL  
DATABASE DESIGN  
FOR KKK Online System**

**Group Name: *Tech Hi-Five***

**Members:**

- 1. Chua Jia Lin (Group Leader)**
- 2. Teh Ru Qian**
- 3. Tan Yi Ya**
- 4. Lam Yoke Yu**
- 5. Goe Jie Ying**

**Stakeholder: Encik Ahmad, Koperasi Kakitangan KADA**

**Kelantan Berhad (KKK)**

**Printing Date: 17/12/2024**

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# **1 Introduction**

KADA Company's traditional manual system for membership registration and loan applications presents challenges such as the need for physical presence and security risks. An online system is introduced to modernize these processes, providing a more secure, efficient and user-friendly solution for all stakeholders.

## **1.1 Overview about the company**

Koperasi Kakitangan Daerah Kelantan Berhad (KADA) is a significant cooperative in Malaysia established to provide financial services and social services to the employees of the Lembaga Kemajuan Pertanian Kemubu and its members. The cooperative plays an important role in enhancing the economic well-being of its members through its savings, loan facilities and share services, exemplifying the principles of member ownership, democratic control and mutual benefit.

## **1.2 Problems**

The current manual system used by the KADA company has many challenges. Offline registration requires user presence, resulting in inefficiencies and inconvenience for new and existing members wishing to apply for loans. The system is prone to unauthorized access due to unprotected paper-based documents, putting important data at risk. Physical storage of records increases the risk of data loss due to damage, theft or deterioration. Additionally, staff members deal with heavy administrative load when reports cannot be generated automatically, which may lead to mistakes and delays in decision-making. Lastly, the lack of an automated system limits the company's ability to efficiently track and evaluate its financial performance.

## **1.3 Proposal**

The proposed solution is to transition KADA's current manual system to an online platform. This modernized system will address the needs of new users, administrators, loan applicants and board managers by offering secure access, automating data collection and providing role-based permissions. The system will track user activities and log all operations, ensuring data security and preventing information theft. It also supports continuous updates to enhance functionality and security. Operationally, the online system offers convenience by enabling users to register, apply for loans and generate reports from anywhere at any time. This shift will reduce the administrative burden and improve the efficiency of the company's financial management.

## 1.4 Definitions, Acronyms and Abbreviations

This section provides the definitions of all terms, acronyms, and abbreviations required to interpret this documentation.

KADA	<i>Lembaga Kemajuan Pertanian Kemubu</i>
KKK	<i>Koperasi Kakitangan Daerah Kelantan Berhad.</i>
SD	<i>System Documentation</i>
ISO/IEC	<i>International Organization for Standardization/International Electrotechnical Commission</i>
IEEE	<i>Institute of Electrical and Electronics Engineers</i>
TLS	<i>Transport Layer Security</i>
WPA	<i>Wi-Fi Protected Access</i>
UTC	<i>Coordinated Universal Time</i>

## 2 Database System Requirement

This section outlines the database system requirement, including system modules, specific transaction requirements and local conceptual data models for each module.

### 2.1 System Overview

The current version of the KKK Online System is to improve cooperative procedures such as member registration, loan application management, administrative tasks, approval tracking and financial reporting. By digitising manual processes and enabling online registration, loan applications and approval tracking, it improves accessibility and efficiency. Board members look over and approve applications, while administrators manage data and policies.

Figure below shows the use case of the KKK Online System.

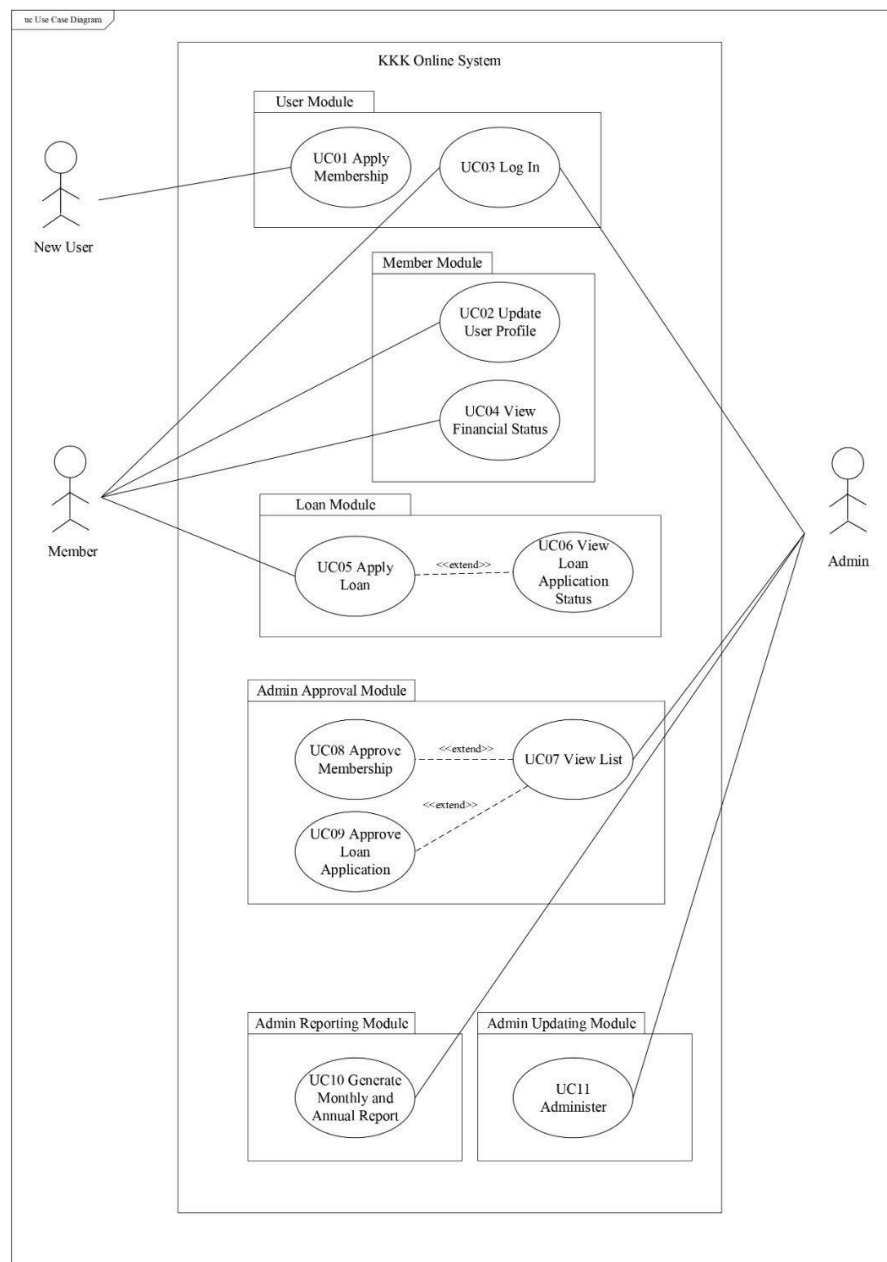


Figure 1.1 use case diagram for KKK online system

## 2.2 Module User

Lam Yoke Yu is responsible for documenting this module.

### 2.2.1 Module Description

This module involves actor User and Admin. There are 2 use cases in this module, namely UC01 Apply Membership and UC03 Login.

#### UC01 Apply Membership

The employees in KADA can apply to be a member of the KKK cooperative by filling in the online form and upload any required documents.

#### UC03 Login

The cooperative member and the administrator can log in the system by using the correct login credentials. The members will then be directed to the member's page and the administrator will be directed to the administrator's page.

### 2.2.2 Transaction Requirement: Data Entry

Enter the details for the member application.

Enter the login credential of the user.

### 2.2.3 Transaction Requirement: Data Update/Deletion

Update the details of a member.

### 2.2.4 Transaction Requirement: Data Queries

Identify the user type based on the login credentials from data entry.

### 2.2.5 Local Conceptual Data Model (ERD)

The local conceptual data model (ERD) of the admin reporting module is shown in Figure 1.2.

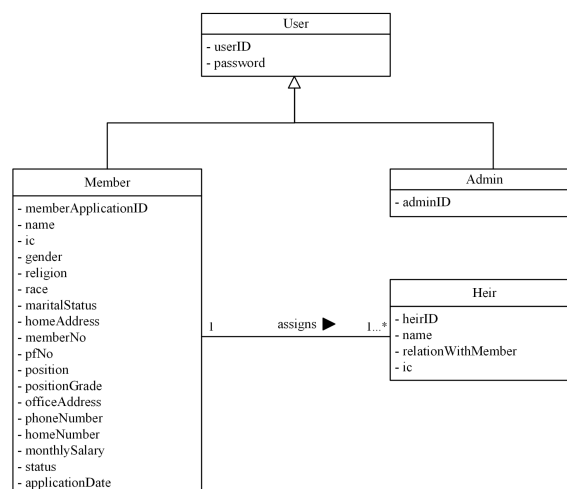


Figure 1.2 local conceptual data model for User module

## **2.3 Module Member**

Goe Jie Ying is responsible for documenting this module.

### **2.3.1 Module Description**

This module involves actor User. There are 2 use cases in this module, namely UC02 Update User Profile and UC04 View Financial Status.

#### **UC02 Update User Profile**

KKK members can check and update their personal information, family, and inheritor details by modifying the relevant fields in their profile.

#### **UC04 View Financial Status**

KKK members can view their financial status, including share information and loan details.

### **2.3.2 Transaction Requirement: Data Entry**

The module does not support direct data entry. All data used in the reports is retrieved from existing system records.

### **2.3.3 Transaction Requirement: Data Update/Deletion**

Update the user profile.

Delete outdated or incorrect user information.

### **2.3.4 Transaction Requirement: Data Queries**

Retrieve user profile information.

Retrieve financial status.



### 2.3.5 Local Conceptual Data Model (ERD)

The local conceptual data model (ERD) of the member module is shown in Figure 1.3.

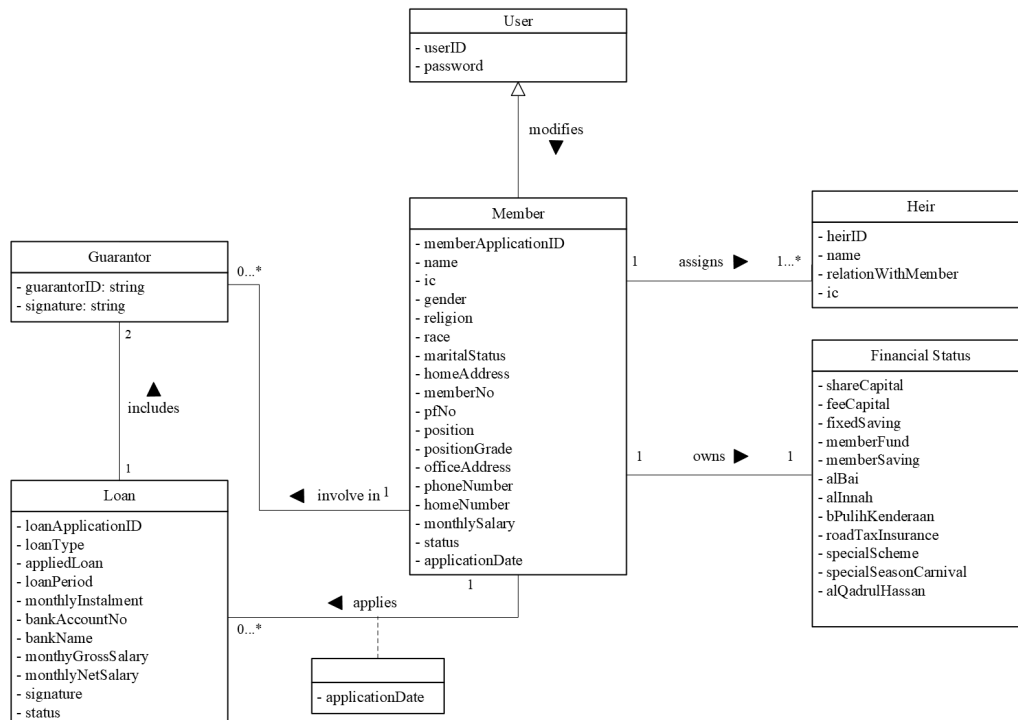


Figure 1.3 local conceptual data model for Member module

## **2.4 Module Loan**

Tan Yi Ya is responsible for documenting this module.

### **2.4.1 Module Description**

This module involves the process of loan handling. There are two use cases involved in this module, which are UC03 Apply Loan and UC04 View Loan Application Status.

### **2.4.2 Transaction Requirement: Data Entry**

#### **UC03 Apply Loan**

Enter the user information such as member number, bank account number and bank name.

Enter loan information such as loan type, loan amount, loan period.

Enter salary information such as monthly gross salary and monthly net salary.

#### **UC04 View Loan Application**

Does not support direct data entry.

### **2.4.3 Transaction Requirement: Data Update/Deletion**

Update the user information such as bank account number and bank name.

Update the salary of the user.

### **2.4.4 Transaction Requirement: Data Queries**

#### **UC04 View Loan Application**

Display the amount of monthly installment needed to be paid by the user.

Retrieve the loan application id.

Retrieve the application date of loan application by the user.

## 2.4.5 Local Conceptual Data Model (ERD)

The local conceptual data model (ERD) of the loan module is shown in Figure 1.3.

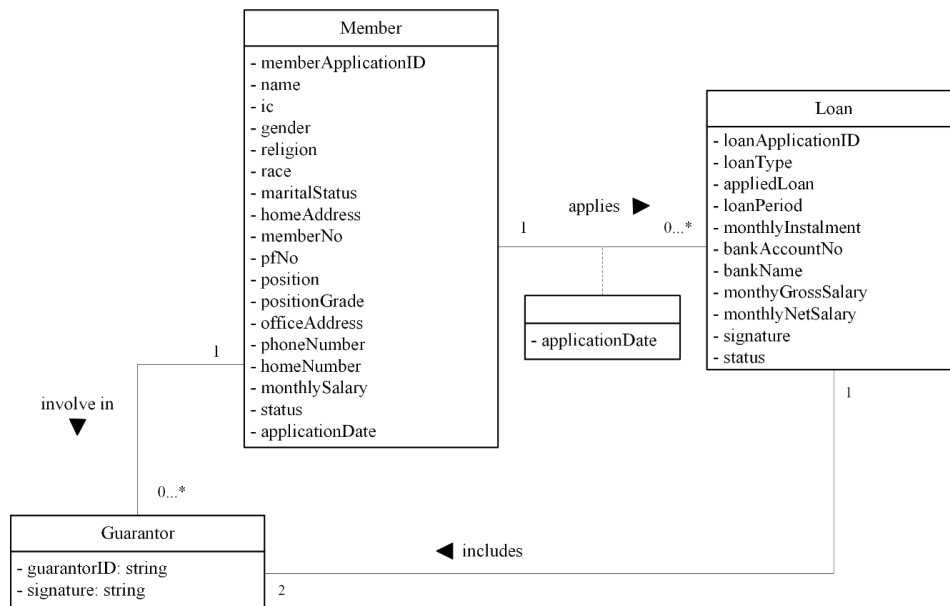


Figure 1.4 local conceptual data model for Loan module

## **2.5 Module Admin Approval**

Chua Jia Lin is responsible for documenting this module.

### **2.5.1 Module Description**

This module involves actor Admin. There are 3 use cases inside this module, which are UC07 View List, UC08 Approve Membership, and UC09 Approve Loan Application.

#### **UC07 View List**

In this use case, admins are able to view the list of membership and loan applications as well as the existing members and borrowers.

#### **UC08 Approve Membership**

In this use case, admins are able to update the status of the membership application, either “Diterima”, “Ditolak”, or “Sedang Diproses”.

#### **UC09 Approve Loan Application**

In this use case, admins are able to update the status of the loan application, either “Diterima”, “Ditolak”, or “Sedang Diproses”.

### **2.5.2 Transaction Requirement: Data Entry**

The module does not support direct data entry. All data required are retrieved from existing system records.

### **2.5.3 Transaction Requirement: Data Update/Deletion**

The module supports:

**UC07 View List:** Does not support data update/deletion.

**UC08 Approve Membership:** Update status of membership application.

**UC09 Approve Loan Application:** Update status of loan application.

### **2.5.4 Transaction Requirement: Data Queries**

The module supports retrieval of:

- List the membership list (including member number, name, and approval date).
- List the loan borrower list (including member number, name, amount of loan borrowed, and approval date).
- List the membership applicant list (including member application id, name, status of application, and application date).
- List the loan applicant list (including loan application id, name, status of application, and application date).

### 2.5.5 Local Conceptual Data Model (ERD)

The local conceptual data model (ERD) of the admin approval module is shown in Figure 1.5.

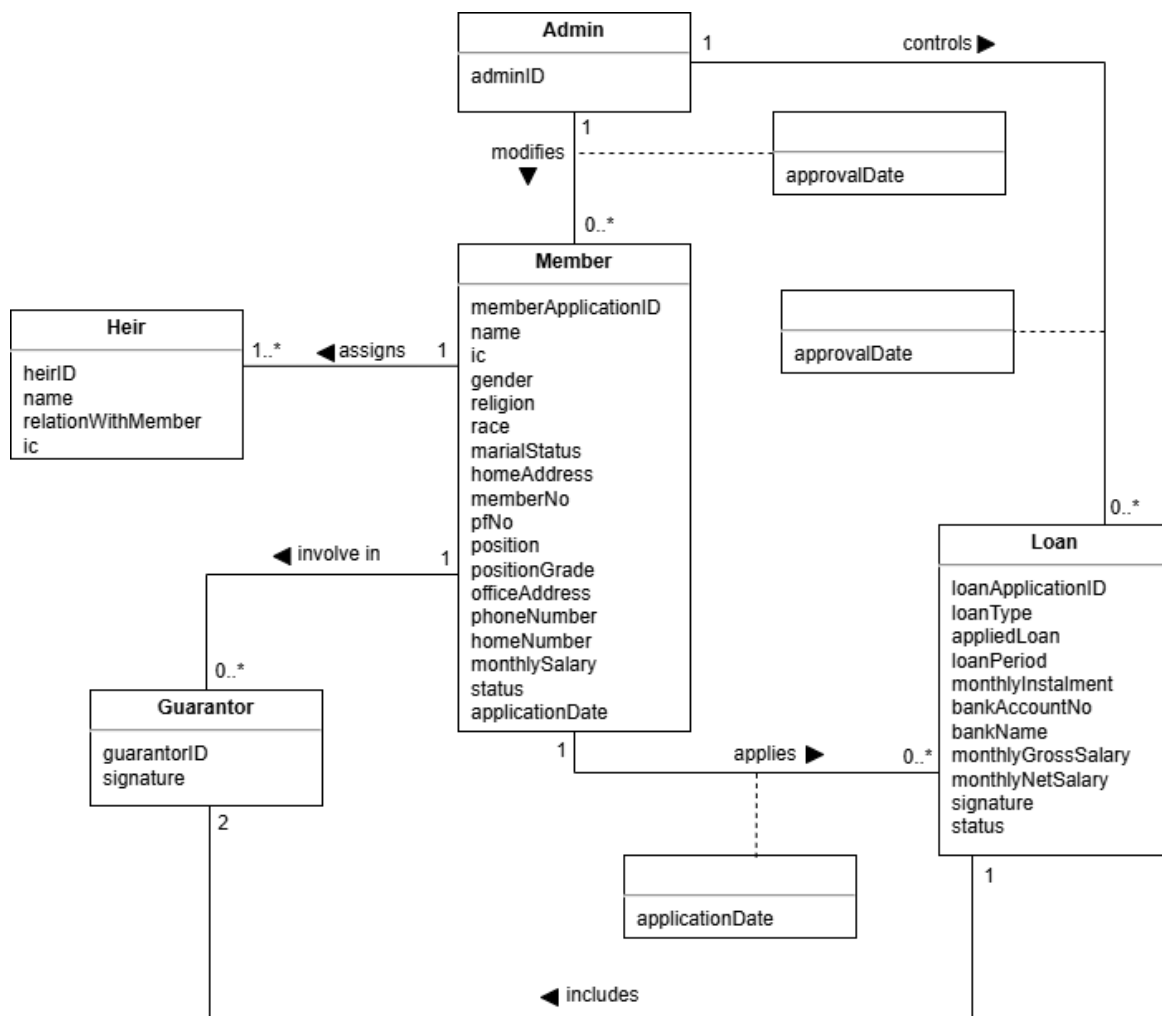


Figure 1.5 local conceptual data model for admin approval module

## **2.6 Module Admin Updating**

Teh Ru Qian is responsible for documenting this module.

### **2.6.1 Module Description**

This module involves actor Admin. There are 1 use case inside this module, which is UC11 Administer.

#### **UC11 Administer**

The administrator updates and maintains system records and configurations to ensure accurate transaction data, policy changes and dynamic updates.

### **2.6.2 Transaction Requirement: Data Entry**

The module does not support direct data entry. All data required are retrieved from existing system records.

### **2.6.3 Transaction Requirement: Data Update/Deletion**

Update share capital in member profiles

Update loan interest rates

Update website banners

Delete outdated or incorrect records

### **2.6.4 Transaction Requirement: Data Queries**

Retrieve member profiles and financial details

Retrieve financial status

Retrieve existing policies

Retrieve existing banners

## 2.6.5 Local Conceptual Data Model (ERD)

The local conceptual data model (ERD) of the admin updating module is shown in Figure 1.6.

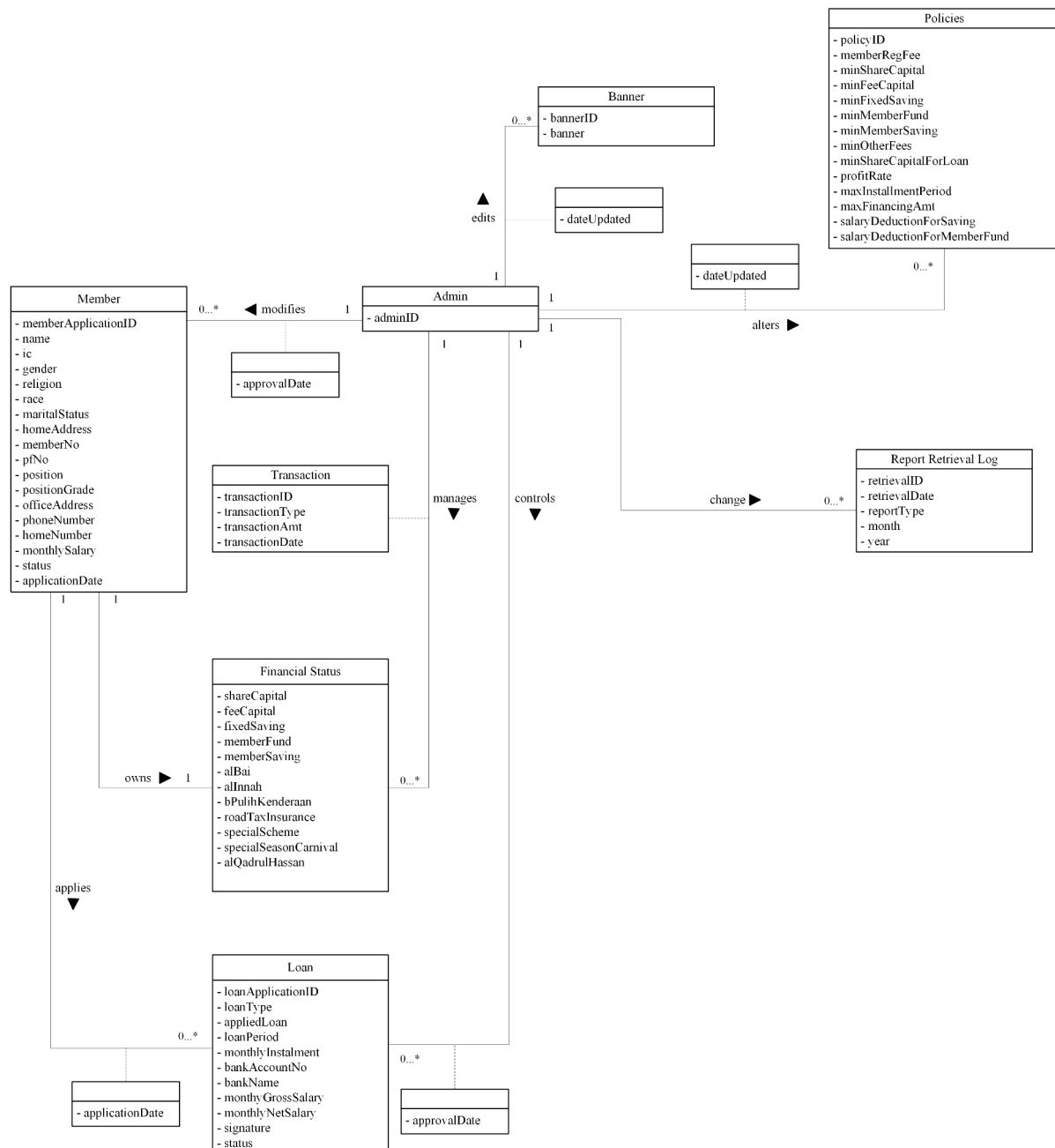


Figure 1.6 local conceptual data model for admin updating module

## **2.7 Module Admin Reporting**

Teh Ru Qian is responsible for documenting this module.

### **2.7.1 Module Description**

This module involves actor Admin. There are 1 use case inside this module, which is UC10 Generate Monthly and Annual Report.

#### **UC10 Generate Monthly and Annual Report**

The admin can generate monthly and annual reports that summarise the financial and membership information.

### **2.7.2 Transaction Requirement: Data Entry**

The module does not support direct data entry. All data used in the reports is retrieved from existing system records.

### **2.7.3 Transaction Requirement: Data Update/Deletion**

The module does not support updates or deletions. It is strictly read-only for generating reports.

### **2.7.4 Transaction Requirement: Data Queries**

Retrieve list of member applications

Retrieve list of loan application

Retrieve list of existing members

Retrieve list of current debtors

Retrieve transaction records



## 2.7.5 Local Conceptual Data Model (ERD)

The local conceptual data model (ERD) of the admin reporting module is shown in Figure 1.7.

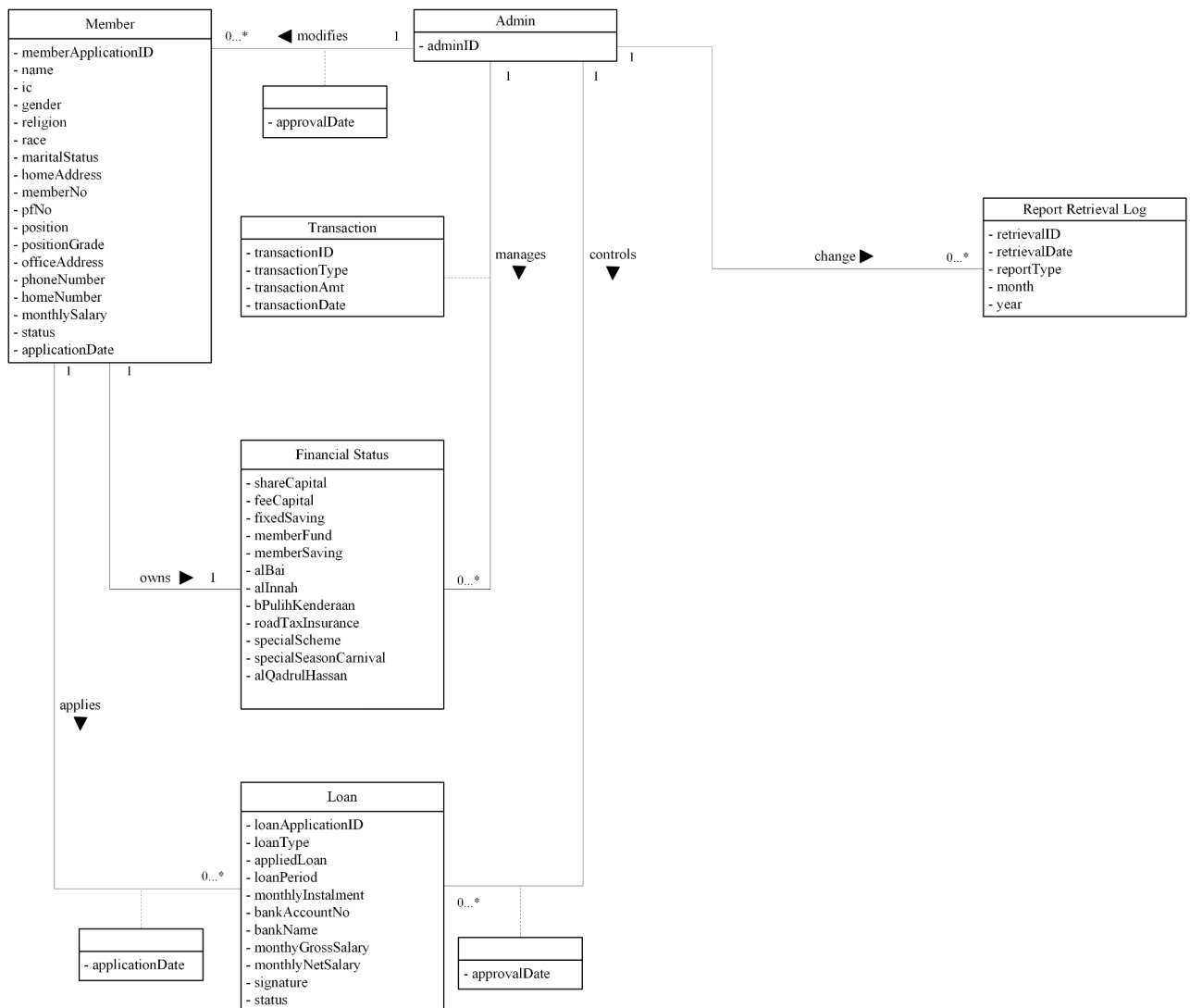


Figure 1.7 local conceptual data model for admin reporting module

### 3 Global Conceptual Data Model (Global ERD)

The Global Conceptual Data Model outlines the main entities of KKK system and their relationships.

#### 3.1 Global Conceptual Design (ERD)

The global conceptual design is shown in Figure 1.8.

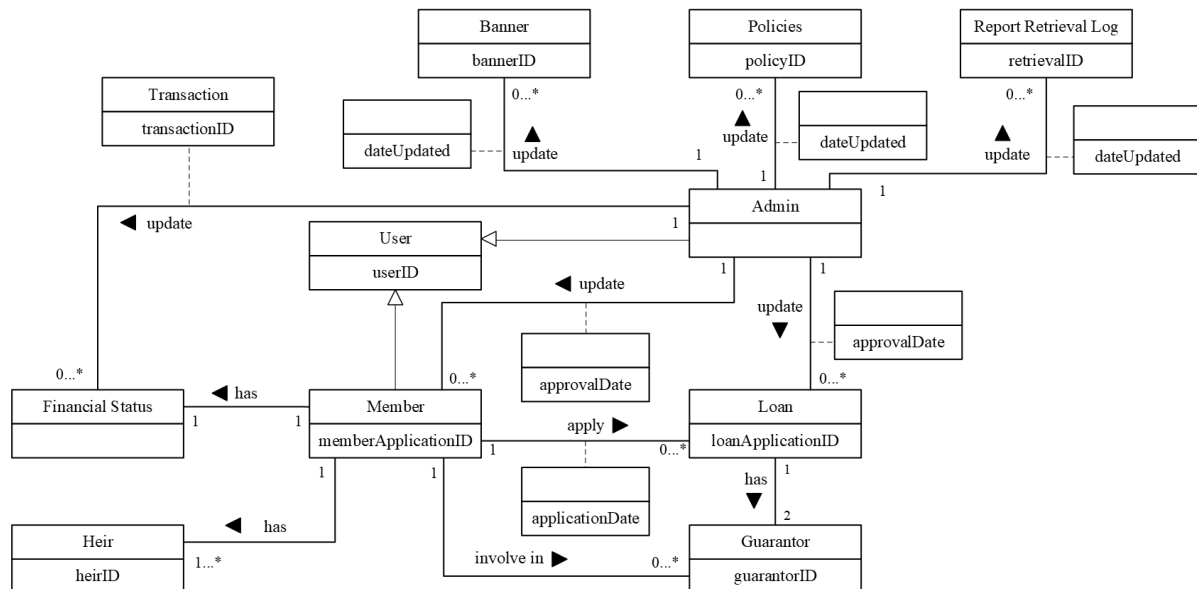


Figure 1.8 global conceptual design (ERD)

### 3.2 Verified Global Conceptual Design (Verified ERD)

The verified global conceptual design is shown in Figure 1.9.

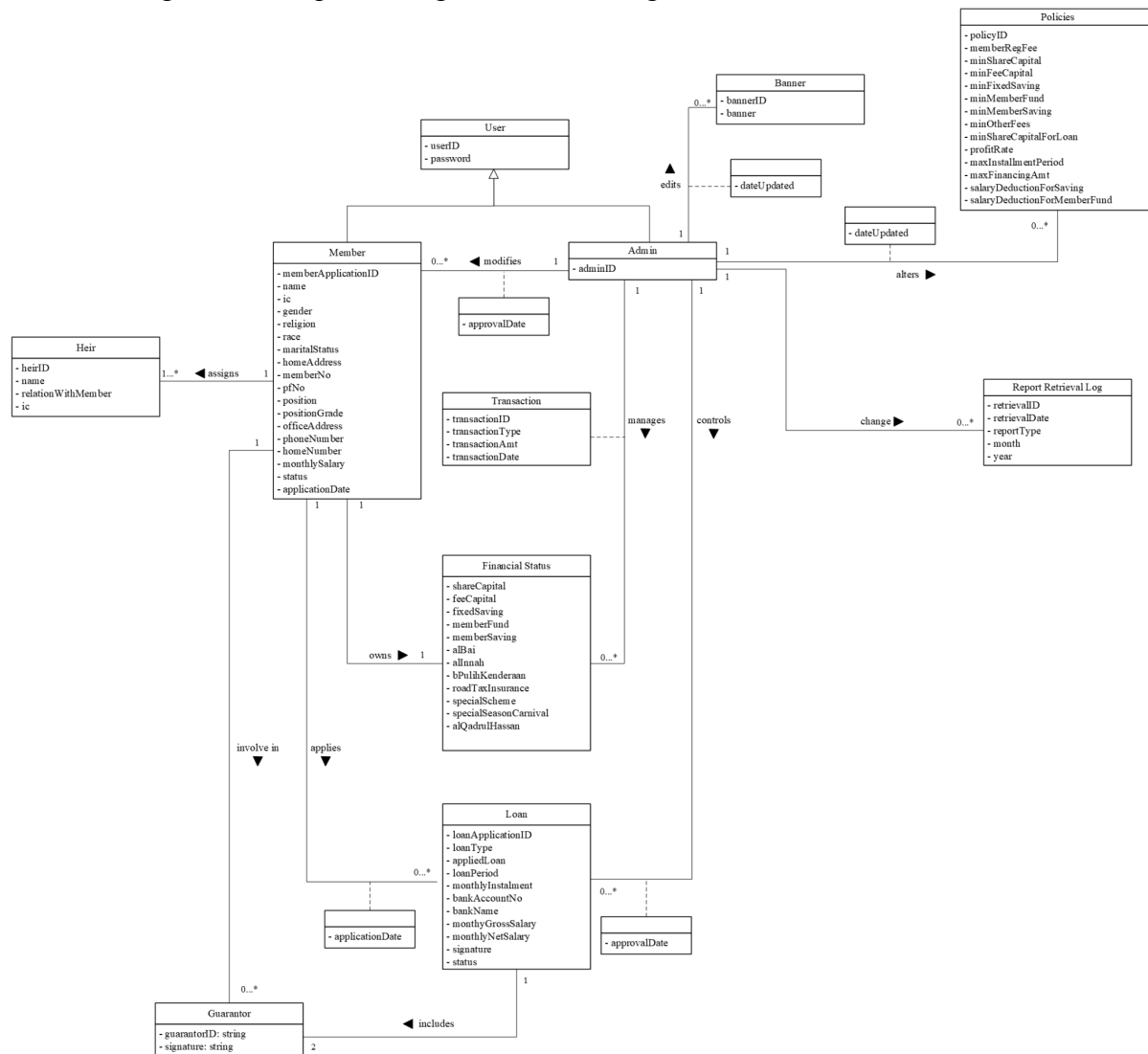


Figure 1.9 global conceptual design (verified ERD)

### 3.3 Data Dictionary for the global conceptual ERD

This section records the glossary specific to this global conceptual ERD.

Glossary	Meaning
ID	Identification Number
pfNo	Employees' Personal File Number
transactionAmt	Transaction amount
bPulihKendaraan	Car reparation fee
memberRegFee	Member registration fee

## 4 Appendices

This section provides additional information, including use case and activity diagrams to enhance understanding of the system and its development process.

### 4.1 Use Case Diagram for the system

The use case diagram for the system is shown in Figure 2.0.

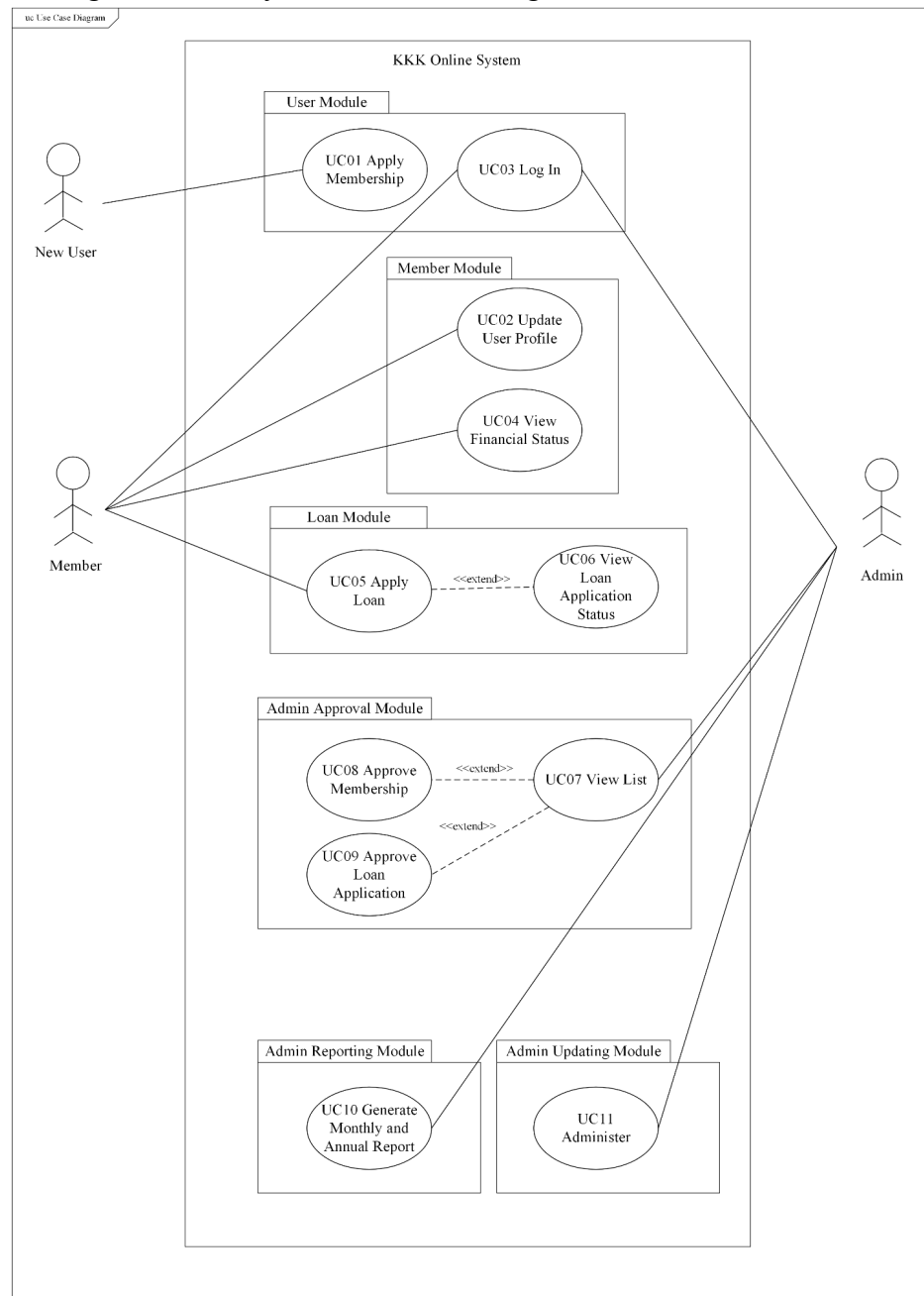


Figure 2.0 use case diagram for the system

## 4.2 Activity Diagrams for every use case identified

### UC01 Apply Membership

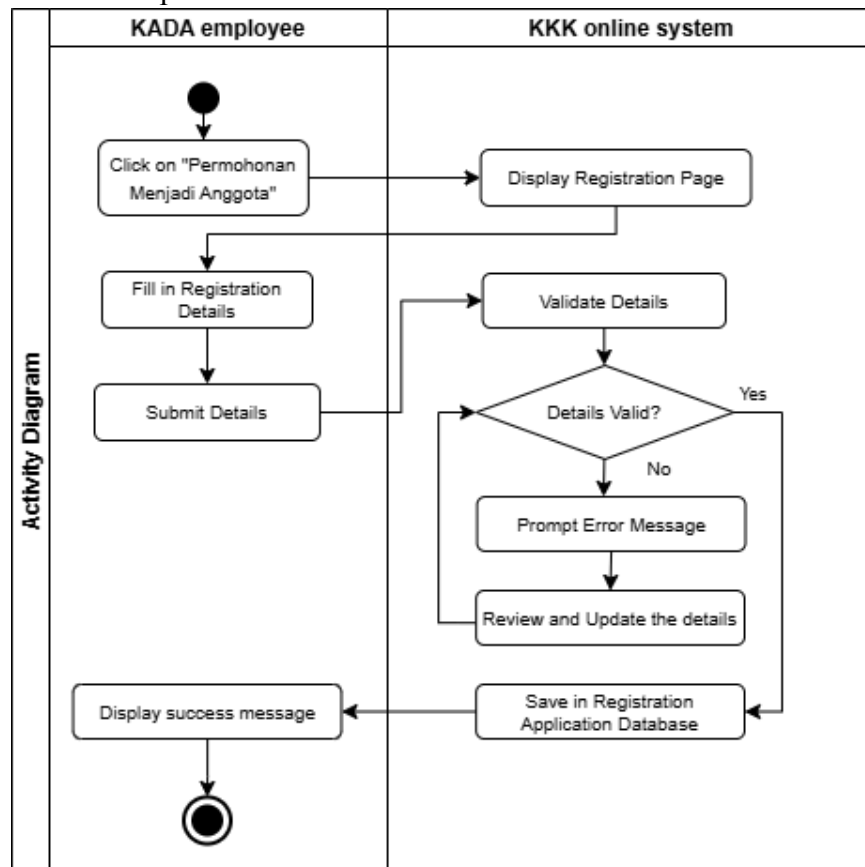


Figure 2.1: Activity Diagram for Apply Membership

## UC02 Update User Profile

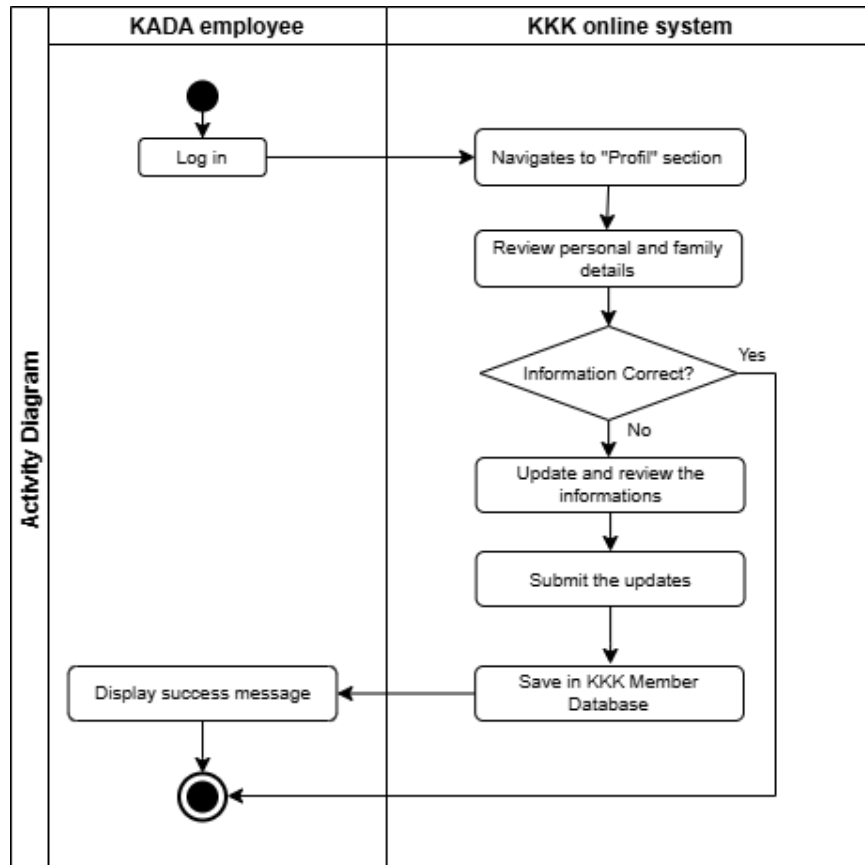


Figure 2.2: Activity Diagram for Update User Profile

## UC03 View Financial Status

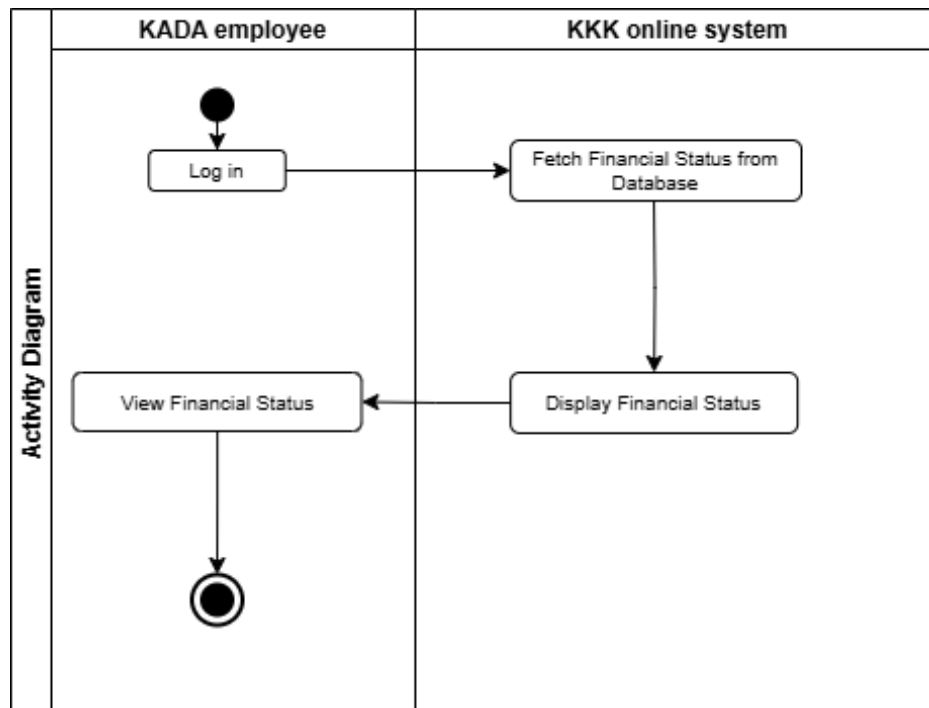


Figure 2.3: Activity Diagram for View Financial Status

## UC04 Apply for a Loan

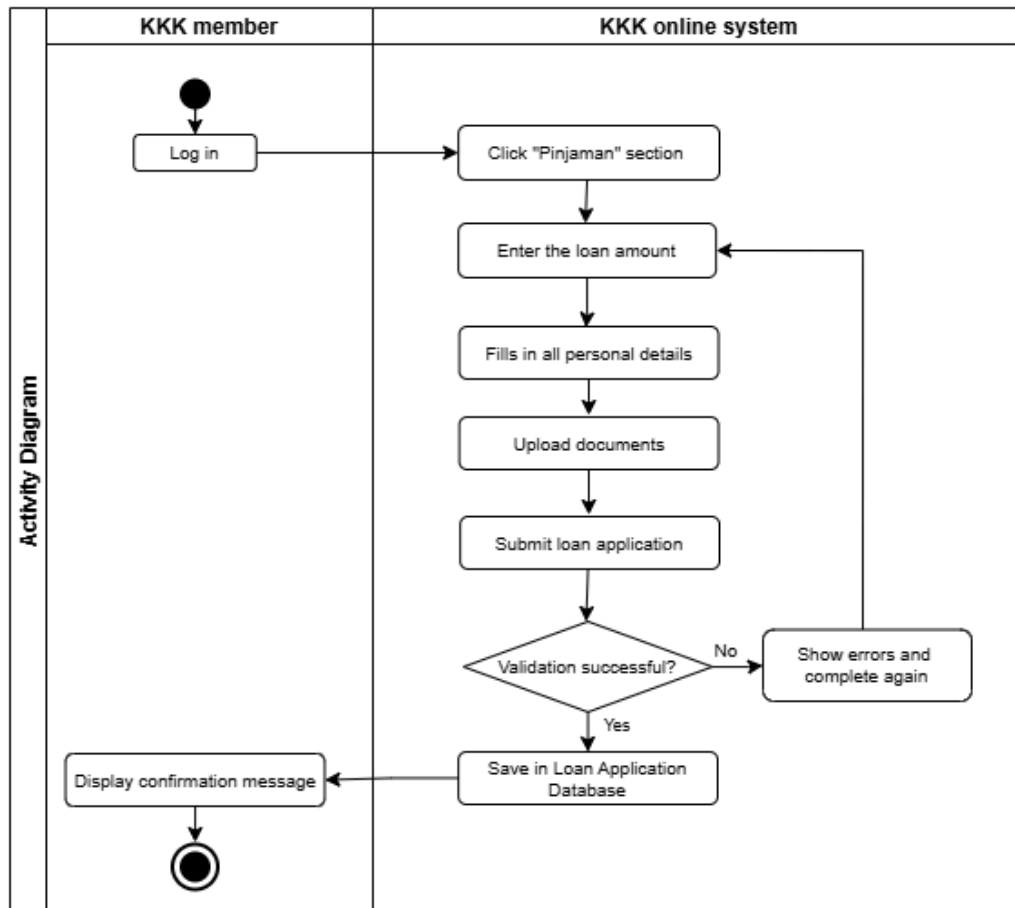


Figure 2.4: Activity Diagram for Apply for a loan

## UC05 View Loan Application Status

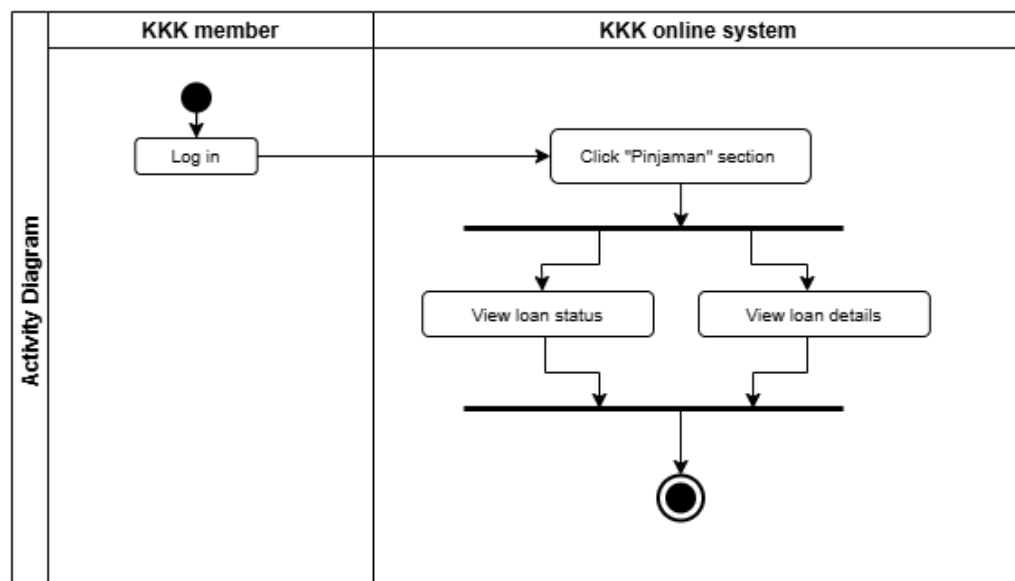


Figure 2.5: Activity Diagram for View Loan Application Status

## UC06 KKK Admin Login to System

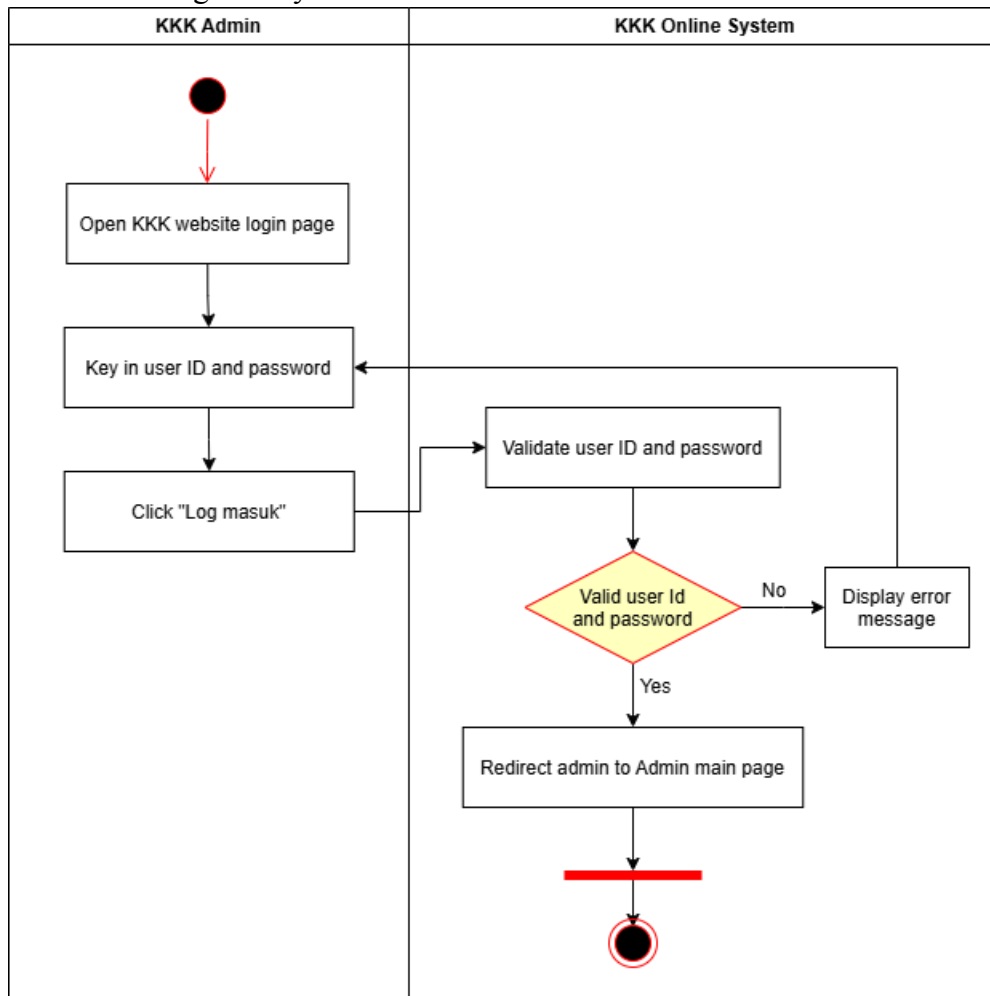


Figure 2.6: Activity Diagram for KKK Admin Login to System



## UC07 KKK Admin View List

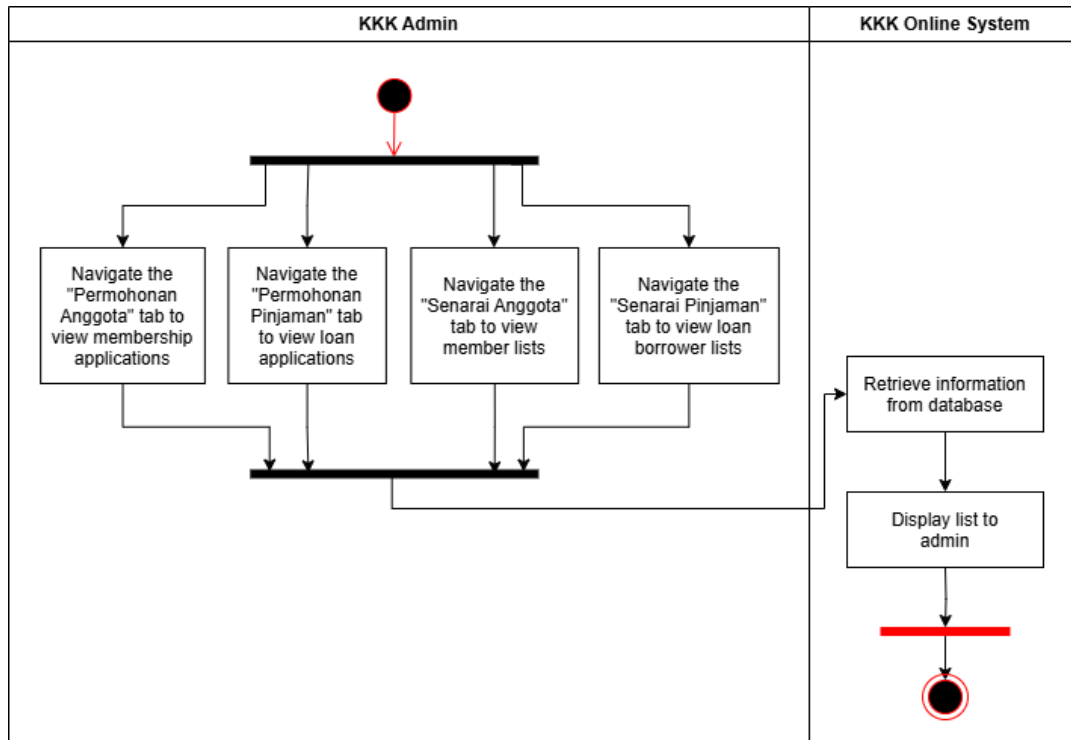


Figure 2.7: Activity Diagram for KKK Admin View List

## UC08 KKK Admin Approve New Member Application

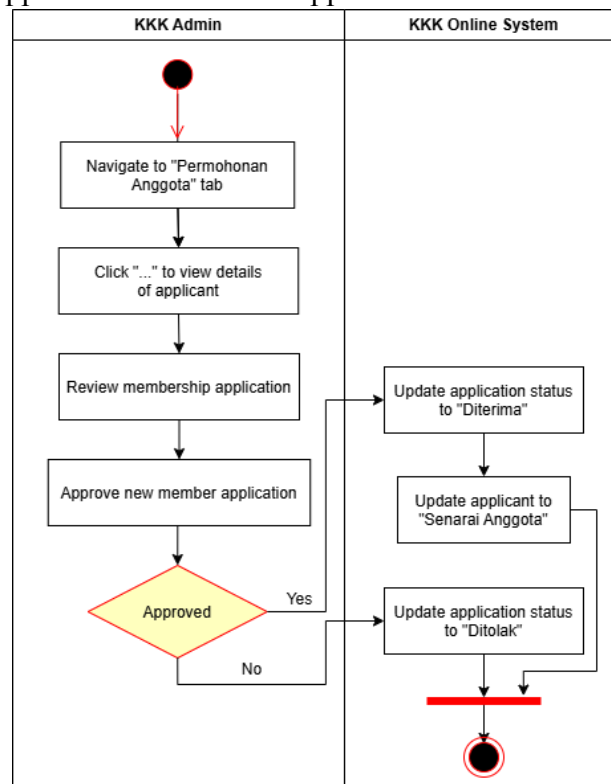


Figure 2.8: Activity Diagram for KKK Admin Approve New Member Application

## UC09 KKK Admin Approve Loan Application

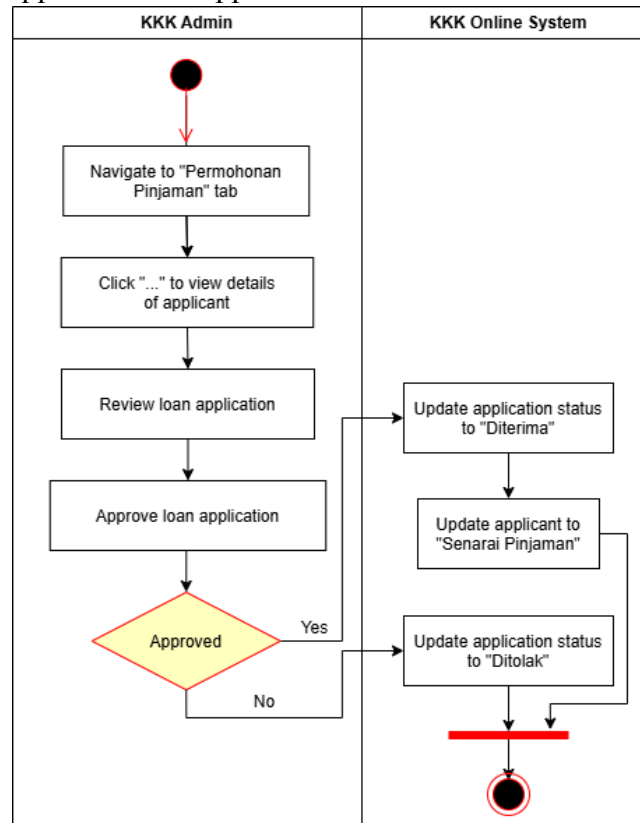


Figure 2.9: Activity Diagram for KKK Admin Approve Loan Application

## UC10 KKK Admin Generate Reports

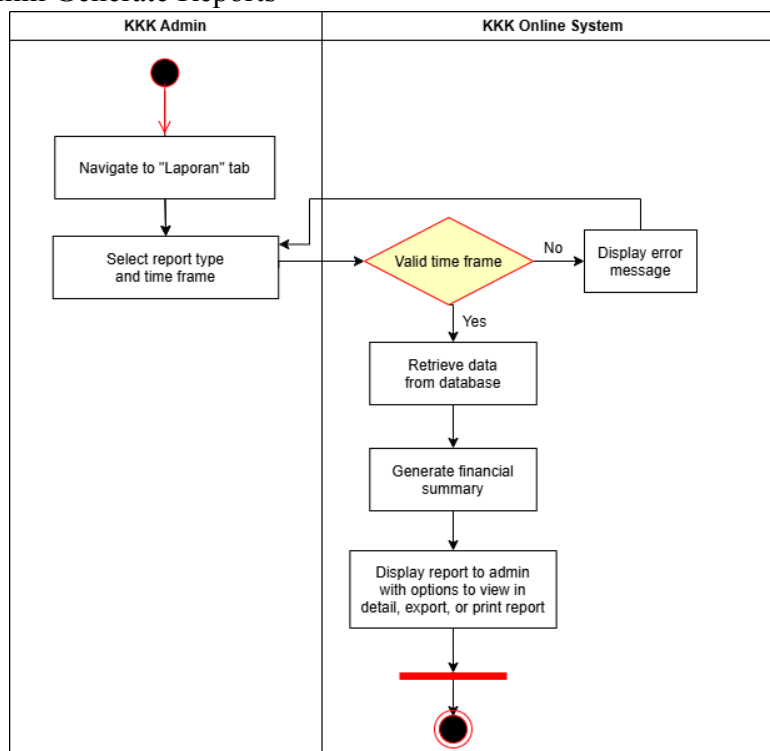


Figure 3.0: Activity Diagram for KKK Admin Generate Reports

## UC11 KKK Admin Administer

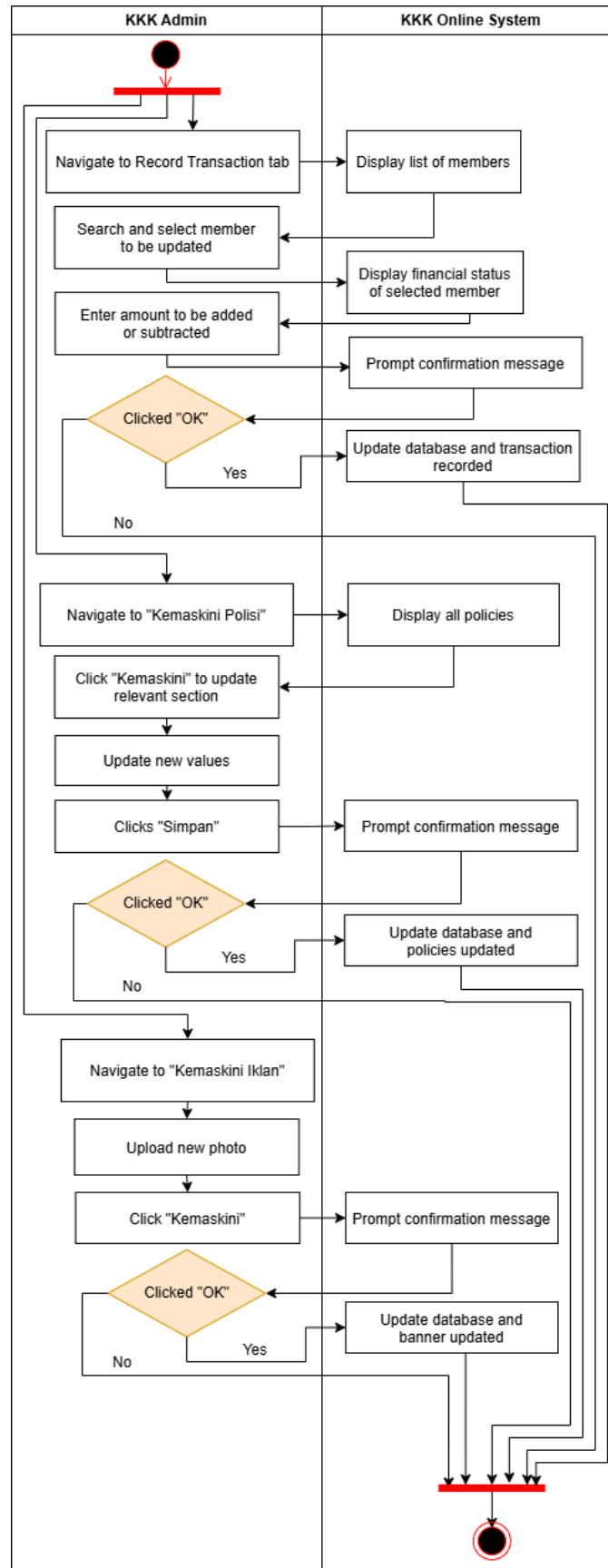


Figure 3.1: Activity Diagram for KKK Admin Administer

### 4.3 Meeting Log

DATE/TIME		9/12/2024	
LOCATION		MPK9, N28	
AGENDA		Discussion on determine the module	
ATTENDANCE			
NAME		TIME	REASON FOR ABSENCE
Chua Jia Lin		4.20pm	-
Goe Jie Ying		4.20pm	-
Lam Yoke Yu		4.20pm	-
Tan Yi Ya		4.20pm	-
Teh Ru Qian		4.20pm	-
MEETING			
NO.	ITEM DISCUSSED	IDEA/SUGGESTIONS AND PERSON GIVING IT	PERSON IN CHARGE & DATE
1	Determine the module	Yoke Yu <ul style="list-style-type: none"><li>Suggest dividing the admin module into three parts based on functionality.</li></ul>	All 9/12
2	Task Distribution	Ru Qian <ul style="list-style-type: none"><li>In charge of admin updating and reporting module</li><li>Write introduction and appendices</li></ul> Yi Ya <ul style="list-style-type: none"><li>In charge of loan module</li><li>Design Global ERD</li></ul> Jie Ying <ul style="list-style-type: none"><li>In charge of member module</li><li>Design Global ERD</li></ul> Yoke Yu <ul style="list-style-type: none"><li>In charge of user module</li><li>Design Global ERD</li></ul> Jia Lin <ul style="list-style-type: none"><li>In charge of admin approval module</li></ul>	All 9/12

3	Next Meeting	14/12 - Progress Checking	All
4	Meeting Ended	5.00 pm	All